

## RESPONSE

1. The Examiner has stated in her first paragraph, "Correction of the following is required; the specification lacks explicit basis that, as in claim 4, line 5, the CPC can penetrate to "all" apexes of cracks."

Indeed the purpose of removing soils, corrosion products, oils, paint, or other coatings in accordance with normal shop practices by persons expert in the art is to expose all cracks so that both the etch and the CPC can enter them and penetrate to their apexes. The use of the word "all" in claim 4, line 5 is supported by the diligence in surface preparation described both in the specification and also written in the Provisional Patent Application that is referenced in the March 26, 2004 Patent Application under "*Description, CROSS-REFERENCE TO RELATED APPLICATION* [0001]. This application claims priority of the filing date of Provisional Application Ser. No. 60/458,270 filed 28 Mar. 2003, the entire contents of which are incorporated herein by reference." In the Provisional Patent Application Abstract, first page, steps 1, 4, and 5 are some surface preparation steps, although some of the procedures in those steps of the Provisional Patent Application were not later detailed in the claims. The use of the word "all" as used is the intention for thorough preparation of the metal surface and the expected effect of a thorough surface preparation by ones skilled in the metallurgical art.

2. The Examiner continued in her second paragraph on page 2, "The specification also lacks basis for 'dipping for discrete times' as in claim 5, line 3. Page 8, [0019] describes rolling, spraying or brushing, but not dipping. Nor does the specification cite to perform the etch 'discrete times.'"

The antecedent basis for both dipping the metal in the CPC and performing the etch for prescribed times is written in the Provisional Patent Application that is referenced in the March 26, 2004 Patent Application under "*Description, CROSS-REFERENCE TO RELATED*

APPLICATION [0001]. This application claims priority of the filing date of Provisional Application Ser. No. 60/458,270 filed 28 Mar. 2003, the entire contents of which are incorporated herein by reference.” The holograph log, page 24 includes the statement, “After the etcher has been on the metal the minimum duration recommended by the Americal (sic for American) Society of Metals Handbooks the parts should be sprayed or dipped into the 1006 ConTac or Super Corr B ...” to which one skilled in metallography etching art can refer to the etch solutions and times for specific metals. At the bottom of the page 24 holograph is a note that other CPCs could be tried.

3. The Examiner continued in her third paragraph on page 2, “The specification lacks explicit basis for ‘increases the apex radii’ as in claim 5, line 7. Page 7, paragraph [0016] describes rounding out the crack tips, but not explicitly increasing the radii.”

The words “rounding out the sharp apexes of the cracks,” “etch the apexes a little...,” and “increasing the radii” are expressions of congruent events just like side-angle-side, angle-side-angle, and side-side-side are expressions of a congruent triangle, and anyone skilled in geometry knows they distinctly describe the same triangle.

4. The Examiner’s fourth sentence on page 2 under “Claim Rejections -35 USC #112, states, “The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In claim 5, the phrase, “dipping for discrete times” is new matter.” The “dipping” matter is discussed in paragraph 2, above, that should resolve this complaint.

5. On page 3 of the Subject Office Action several references to Clerici et al (EP976795) are cited which, it appears, were stated in a previous Office Action and answered in a previous response to the USPTO. Some additional information to assist the Examiner in

understanding the differences in the Clerici art and Horne art follow. In evaluating the examiner's objections the following policies of the USPTO are appropriate to reexamine:

A. The USPTO has instituted a policy of publishing patent applications about one year after their filing with the express purpose of announcing new technology so that many would be inventors could gain new ideas about how to improve the existing art by seeing improvements in the art in the patent submission, examination, and approval cycle. The expressly stated policy was to accelerate better ideas faster by allowing said would-be inventors to observe, recognize, and understand the progress in the comprehension of the science their fellow inventors have discovered and provide their own technologically improved art.

B. Also, a long established policy of the USPTO has been to grant letters patents on procedures and processes that are to accomplish a new purpose. Horne's invention includes a giant step forward in the metal fatigue understanding that can extend the safe and useable life of aircraft that could be manufactured lighter in weight; bridge cables, supports, and floors; elevator cables; reinforced concrete structures; vehicle axles, frames, and sheet metal; springs for all uses; and thousands of other items not yet comprehended. The mere fact that some actions of the art might cause unconsciously, unintended, and not understood results or events that is part of a new process in harmony with USPTO policies does not preclude the said art from being used for the newly invented purpose.

6. However, the Examiner's cited art by Clerici et al (EP976795) already has been shown to not be even remotely similar to the metallurgy and physical chemistry of Horne's invention. For a beginning "hot alkaline cleaner" for steel bolts is to dissolve iron oxide and other contaminants not to etch the steel, and to write that Clerici's method mentioned on page 3 is the same as Horne's process is not supported. In addition, hot alkaline cleaner has been used for decades to clean steel, and is not new with Clerici. Alkalis are stored and shipped in steel

drums, because the alkali does not attack or etch steel, and someone skilled in the art of metallurgical etching would know that.

7. The Examiner's next statement, "Since the method of Clerici is the same as the instant invention, it is expected to enable the penetration of corrosion preventive compound to apexes of cracks, scratches and gouges" is not supported. The Clerici "corrosion preventives" are metallic zinc and aluminum encapsulated in an "antifriction" material and at best would just cover over cracks, scratches, and gouges and trap any moisture that is left in the apexes of the cracks, scratches, and gouges where it could participate in the failure mechanism Horne's art would prevent by using a low surface tension corrosion preventive compound (CPC). The corrosion preventive techniques of Clerici and Horne are based on different corrosion control phenomena; Clerici uses metal particles highly active on the electromotive scale, and Horne employs a liquid that can penetrate to the apexes of cracks, expel water and water borne chemicals, and prevent water from humidity, splashing, or submersion to penetrate to the apexes again. It is a spectacular improvement of the art.

8. The Examiner states, "As to claim 5, Clerici discloses to etch ([0020] - pickling by 10% HCl) - discrete times, rinsing and drying....Since the method steps are the same as the instant invention, the method is expected to minimize stress intensity factors compared to unetched apex radii locations." Clerici et al specification [0020] states, "Substrates are pretreated prior to coating with an antifriction to improve adhesion and life of the antifriction coating. Conventional methods of pretreatment include degreasing (for example, using solvents or steam), treatment of corroded surfaces by acid or alkali, phosphating, oxalic acid treatment of stainless steel, sandblasting and anodizing."

Clerici's HCl treatment was to prepare it for phosphating over which a solid antifriction material was overlaid. There is no clue in Clerici's application that they even contemplated that

the HCl application was to etch the metal, more specifically to round out the apexes of cracks, etc. to reduce stress intensity factors. Horne's intent to etch the metal down to the apexes of cracks, etc. is a new and novel purpose that is distinctly separate from the established art. Metal preparation for phosphating has been in the public domain for many years. But apparently nobody before Horne's recognition of metal failure mechanisms has recognized that the rounding out or increasing the radii of cracks, etc. apexes and application of a CPC that is highly penetrating to the crack, etc. apexes can increase the strength and fatigue life of metals.

9. The Examiner continues, "As to claim 6, Clerici discloses surface treatment with a corrosion preventive compound ([0021]-[0023] – the "antifriction coating" which also provides corrosion resistance), rinsing ({0020]- line 18) and drying ([0020] – line 19). Since the method of Clerici is the same as that cited, it is expected to have the same results of minimizing stress intensity factors and distributing forces and potential energy compares to the unetched metal."

It is an important bit of nomenclature that Clerici's corrosion prevention method is not with a corrosion prevention compound (CPC), but Clerici uses elemental metals that have the phenomenon to sacrificially corrode to protect the metal over which it is laid, but it also traps water in cracks under their antifriction coating. Clerici's use of zinc and aluminum is basically the same as application of zinc over entire parts called galvanizing. That is totally different from the use of a liquid CPC. Clerici's art and Horne's art are not the same.